1880 Waycross Road
Cincinnati, Ohio 45240
United States
T +1.513.530.5520
www.jacobs.com

Mr. Gregory Rudloff
U.S. Environmental Protection Agency, Region 5
77 W. Jackson Blvd. LU-9J
Chicago, IL 60604

February 11, 2019

Subject: **Annual Progress Report (January 1 to December 31, 2018), Former Dow Hanging Rock Site, Ironton, Ohio; EPA ID# OHR 000 157 727 and OHD 039 128 913**

Dear Mr. Rudloff,

On behalf of The Dow Chemical Company (Dow), Jacobs Engineering Group Inc. (Jacobs) is pleased to provide the 2018 annual progress report for the Hanging Rock Plant in Ironton, Ohio (site). This progress report was prepared in accordance with the 2016 Administrative Order on Consent between Dow and U.S. Environmental Protection Agency (USEPA), Region 5.

Work Performed during this Period

Table 1 lists the deliverables submitted and approved in 2018. The following work was performed in accordance with the submittals during the reporting period:

- Conducted interim measures at Building 505, including temporarily relocating building workers; posting signage; sealing cracks in the floor; setting air purifying units in two rooms; conducting a visual, HAPSITE gas chromatograph/mass spectrometer, and heating, ventilation, and air conditioning survey; identifying building storage and use contributions to indoor air levels; and setting the schedule for indoor air performance monitoring.
- Conducted five rounds of indoor air sampling at Building 505 in April, May, June, August, and December 2018 per the performance monitoring schedule. Indoor air concentrations were below screening criteria for all events.
- Performed additional Phase 3 source area investigation in June 2018. Samples collected include surface and subsurface soil, grab groundwater, groundwater from MW-08, sewer gas, and exterior soil gas.

Data Collected during this Period

The following data were collected near Solid Waste Management Unit (SWMU) 1 in 2018.

When conducting the interim measures, Jacobs gathered HAPSITE data, as submitted in the *Interim Measures Action Summary Letter* (Jacobs, April 2018). The HAPSITE analyzed indoor air for tetrachloroethene (PCE); trichloroethene (TCE); 1,1-dichloroethene (DCE); trans-1,2-DCE; cis-1,2-DCE; and vinyl chloride. The findings identified several potential sources/pathways at the site. The potential pathways identified were the cracks and gaps found in the floor and pipe riser, which were sealed on April 4, 2018. The potential building source identified the use of aerosol PCE and TCE spray cans in an interior room and the warehouse. These cans were removed from use in the interior room.

The interim measures indoor air performance monitoring analytical results were submitted in the five *Post-Interim Measures Indoor Air Analytical Data Submittals* (Jacobs, April, May, June, August 2018, and January 2019). Indoor air samples were analyzed for PCE; TCE; 1,1-DCE; trans-1,2-DCE; cis-1,2-DCE; and vinyl chloride by USEPA Method TO-15 SIM. All detections were below the screening criteria.

In June 2018, the vapor intrusion source area investigation was conducted. The following samples were collected in and around Buildings 505, 500, and 501:

- 149 surface and subsurface soil samples
- 24 groundwater grab samples
- 1 groundwater sample from MW-08
- 14 exterior soil gas samples
- 2 sewer gas samples

The analytical data were evaluated against USEPA established screening levels. The Phase 3 investigation activities, analytical data, and conclusions are presented in the *RCRA Facility Investigation (RFI) Phase 3 Report* (Jacobs, October 2018).

Problems Encountered

No problems were encountered during this reporting period.

Anticipated Project Schedule and Estimated Percent Complete

Table 1 lists the project schedule, including tasks, completed or anticipated dates, and percent complete.

Table 1. Project Schedule and Percent Complete

Task	Completed or Anticipated Date	Percent Complete
USEPA approved the RFI Phase 1 Work Plan to investigate soil at 15 SWMUs and 1 area of concern	November 2011	100%
USEPA approved RFI Phase 1 Report	September 2014	100%
USEPA approved RFI Phase 2 Work Plan to investigate sitewide groundwater and soil at two SWMUs	October 2014	100%
USEPA approved Additional RFI Phase 2 Work Plan to further investigate SWMU 1 soil and groundwater	September 2015	100%
Dow submitted Resource Conservation and Recovery Act Corrective Action Documentation of Environmental Indicator Determination, Current Human Exposures Under Control, and Migration of Contaminated Groundwater Under Control	September 2016	100%
USEPA approved RFI Phase 2 Report	July 2017	100%
Dow submitted RFI Phase 3 Work Plan to investigate soil gas near SWMU 1	September 2016	100%
Dow conducted Initial Phase 3 vapor intrusion field investigation to investigate outside and subslab soil gas and indoor air at three buildings near SWMU 1	August and September 2017	100%
Dow submitted Potential Vapor Intrusion Investigation Summary Technical Memorandum detailing the Phase 3 investigation vapor intrusion results	October 2017	100%
Dow submitted Draft Additional Phase 3 Work Plan to investigate the source of subslab and indoor air concentration exceedances	February 2018	100%
USEPA requested immediate interim measures be taken at Building 505	March 16, 2018	100%

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Table 1. Project Schedule and Percent Complete

Task	Completed or Anticipated Date	Percent Complete
Dow submitted Potential Vapor Intrusion Interim Measures Action Plan	March 20, 2018	100%
Dow submitted Interim Measures Action Summary Letter detailing interim measures completed, findings, and performance monitoring schedule	April 19, 2018	100%
Dow conducted interim measure indoor air sampling at Building 505 and submitted an Analytical Data Summary following each event	April, May, June, August, and December 2018	100%
USEPA approved Additional RFI Phase 3 Work Plan	May 2018	100%
Dow conducted the additional RFI Phase 3 vapor intrusion source area field investigation	June 2018	100%
Dow submitted Phase 3 RFI Report	October 2018	100%
USEPA approves Phase 3 RFI Report	Second quarter 2019	0%
Dow will submit Final Corrective Measures Proposal to propose preferred corrective measures	Third quarter 2019, will be submitted 90 days following USEPA approval of the Phase 3 RFI Report	0%
Dow will submit Initial Financial Assurance Cost Estimate	Third quarter 2019, will be submitted 90 days following USEPA approval of the Phase 3 RFI Report	0%
USEPA approves the Corrective Measures Proposal	First quarter 2020	0%
Initial financial assurance mechanism in place	Second quarter 2020, will be submitted 90 days following USEPA approval of the initial cost estimate	0%
Dow will implement the corrective measures	Third quarter 2020	0%
Dow will submit Remedy Construction Completion Report	First quarter 2021	0%
Dow will submit Annual Financial Assurance Cost Estimate Update	First quarter each year until closure, will be submitted by April 1 (90 days from end of year)	0%
Dow will potentially provide Operations and Maintenance Plan and/or Groundwater Monitoring Plan for Corrective Measures	2021	0%

RFI = Resource Conservation and Recovery Act facility investigation
SWMU = solid waste management unit

If you have any questions or comments, please contact me at (513) 673-2201 or Timothy A. King at (304) 747-3763.

Sincerely,

Marie W. Chiller, Jacobs
Site Manager

cc: Timothy A. King/The Dow Chemical Company